



## Fall 2010 Frozen Head Biodiversity Report





**“It is that range of biodiversity that we must care for - the whole thing - rather than just one or two stars.” David Attenborough**

It has been several months since my last report so I wanted to update you on some of the efforts over the summer and fall. A busy summer and several projects conspired to limit my time working on collections, but a few new species were added to the park lists. I did not do this alone, but had assistance from volunteers and staff.

I observed a new species of fungus, the snow fungus, (*Tremella fuciformis*) was seen and photographed on 16 November along the Interpretive Loop Trail. Slimy to the touch, this gelatinous fungus is a parasite of other fungi. This jelly fungus is highly prized as a delicacy and medicine in Asia, where tons are cultivated yearly. Since I am not a mycologist, my advice is to get the opinion of an expert before eating any mushrooms. I would like to thank Dr. Kathie Hodge of Cornell University for looking at the photo of the fungus and supporting my initial identification.

After reviewing the recent additions to the plant list, the park is home to 478 species of plants. For years the park used the unfinished *Flora of Frozen Head State Park* by Nancy Fraley and staff observations as the basis for the plant list. Volunteer efforts this year increased the plant list with 36 new species; most documented in the Sang Branch watershed of the Emory Tract. The five largest plant families in the park are Asteraceae (55 species), Poaceae (25), Liliaceae (23), Rosaceae (20), and a tie for fifth between Cyperaceae (17) and Fabaceae (17).

My sole contribution to the flora this year came in November when I observed and tentatively identified the Axillary

Goldenrod (*Solidago caesia*) blooming along the Lookout Tower Trail and near Panther Gap. I have not confirmed the identification of this species so please let me know if this is incorrect.

Park staff made several additions to the insect list over the last few months. Randy McKeegan made us aware of an unusual caterpillar. The Monkey Slug (*Phobetron pithecium*) is the caterpillar of the hag moth. It is thought that the caterpillar mimics the cast off skin of spiders or dead leaves. The “arms” are deciduous and can be shed to deter predators. Though frightful looking, they are harmless and do not sting. David Engebretson discovered the caterpillar of an American Dagger Moth (*Acronicta americana*) in the picnic area during August. Several of these owl moths were subsequently seen in the day use area.

There were two discoveries from the order Orthoptera (grasshoppers and crickets) that also increased the checklist. While patrolling the Panther Gap Rockhouse I observed and photographed an unidentified grasshopper. I posted the image to [www.bugguide.net](http://www.bugguide.net) with an identification request. Randy Hoffman confirmed that it was a Pine Tree Spur-throat Grasshopper (*Melanoplus punctulatus*) also known as a Grizzly Spur-throat. This species is found throughout the eastern United States and as far west as Arizona. The female reportedly deposits her eggs within holes or crevices of dead tree trunks and is an uncommon habit among grasshoppers. A Jumping Bush Cricket (*Orocharis saltator*) was observed on an oil nut shrub (*Pyrularia olcifer*) at the Tub Springs

campsite on 1 November. This brings the total number of documented Orthoptera to five species.

As I mentioned in the last report, Park Forester Rick Noseworthy was instrumental in organizing a fish survey of the park. Previously, seven species were documented from Flat Fork Creek. As a result of this year’s fish survey of Flat Fork and the Emory River, this list has grown to 23 species representing the following families: six Cyprinidae (minnows), two Catostomidae (suckers), one Salmonidae (trout), seven Centrarchidae (sunfishes), and seven Percidae (perches). The presence of the Tennessee Dace (*Phoxinus tennesseensis*) was confirmed in Flat Fork Creek and was also discovered in the Emory. Additionally, Ranger Travis Bow confirmed the first known oversummering of the stocked rainbow trout, (*Oncorhynchus mykiss*) in Flat Fork Creek. This put-and-take fishery is usually depleted by mid summer and it was generally thought that most would not survive the low water levels and high temperatures of late summer and early fall. This individual trout overcame great odds to survive as long as it did. An exotic species, rainbow trout, need cold water to spawn and it is unlikely to establish a sustainable population in Flat Fork.

I observed some interesting natural phenomena this summer and fall. For several days starting on 13 August, large swarms of dragonflies gathered in the fields of the day use area. During my observation of the dragonflies, I began to notice a pattern within their loose and unsteady movements. Swooping and darting in erratic figure eights, they flew through swarms of small flies and winged ants. Occasionally, one would pull a “high-g” turn, snatched prey from the air and quickly returned to its flight path. Amusingly, they would fly into each other, a branch, or me! It was impossible to net one of the little missiles and I began to feel ridiculous running around swatting at the air. They would follow the shadow of sunset, always just ahead of the terminator line. Based on my research, I determined they may be gliders, (*Pantala* sp.) though I dare not give a more specific identification. It was not only the dragonflies that gathered *en masse*, but the butterflies got into the act as well. Frozen Head is known for its large gatherings of butterflies. Last year the numbers seemed low, but by late summer hundreds of Tiger Swallowtails (*Papilio glaucus*) puddled near the Emory River. When these beautiful butterflies were disturbed, they filled the air with brilliant yellow against the green forest.

Several butterflies migrated quietly through the park with the birds this fall. I observed the occasional monarch as expected, but this year two species stood out, the buckeye, (*Junonia coenia*) and the cloudless sulphur, (*Phoebis*

*sennae*). This was the first year the buckeye migration caught my attention. On warm November days I observed dozens of these butterflies passing through at all elevations and watersheds of the park. The sulphurs were often observed crossing open fields and clearings at all elevations.

Documented Species of Frozen Head State Park	
ANIMALS	
Birds	135
Insects	123
Mammals	28
Fish	23
Amphibians	15
Reptiles	15
Arachnids	11
Total	350
PLANTS	
Herbaceous	303
Woody	104
Grasses	47
Ferns	23
Lycopod	1
Total	478
Total Species	828

As the year closes, we continue to increase our knowledge of the park’s biodiversity and I’m looking forward to next year as the seasons provide new opportunities to learn and to stand in awe of nature. I will continue to keep everyone updated with the progress that we make in understanding the biodiversity of the park. Hopefully, we can continue the bioblitz that was started this year. Please let me know if you have any questions about this report or our work cataloging the parks species. I wish everyone a Very Happy Holiday Season.



**Snow Fungus**

*Tremella fuciformis*

Kingdom: Fungi, Class: Basidiomycetes, Order: Tremellales





**Axillary Goldenrod**

*Solidago caesia*

Kingdom: Plantae, Order: Asterales, Family: Asteraceae





**Monkey Slug (Hag Moth)**

*Phobetron pithecium*

Kingdom: Animalia Phylum: Arthropoda Class: Insecta Order: Lepidoptera Family: Limacodidae





**American Dagger Moth**

*Acronicta americana*

Kingdom: Animalia Phylum: Arthropoda Class: Insecta Order: Lepidoptera Family: Noctuidae





**Pine Tree Spurthroat Grasshopper**

*Melanoplus punctulatus*

Kingdom: Animalia Phylum: Arthropoda Class: Insecta Order: Orthoptera Family: Acrididae





**Jumping Bush Cricket**

*Orocharis saltator*

Kingdom: Animalia Phylum Arthropoda Class Insecta Order Orthoptera Family Gryllidae





### **Feeding Swarm of Dragonflies**

Kingdom: Animalia Phylum Arthropoda Class Insecta Order: Odonata





**Tiger Swallowtail swarm on the Emory River.**

*Papilio glaucus*

Kingdom: Animalia Phylum: Arthropoda Class: Insecta Order: Lepidoptera Family: Papilionidae





**Common Buckeye**

*Junonia coenia*

Kingdom: Animalia Phylum Arthropoda Class Insecta Order Lepidoptera Family Nymphalidae

# The mountains are calling and I must go.

## John Muir

Prepared by  
Michael Hodge  
Interpretive Specialist  
Frozen Head State Park and Natural Area

964 Flat Fork Road  
Wartburg, Tennessee 37887

Tennessee Department of Environment and Conservation  
Tennessee Division of State Parks

December 2010

Cover photo: Sourwood, *Oxydendrum arboreum*

Photographs by Michael Hodge

I want to thank Monique Johnson for taking the time to proofread this report and helping to improve its quality.